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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,899	10/12/2004	Huajie Chen	FIS920040107US1	5898

29154 7590 03/29/2006

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EXAMINER	
PHAM, LONG	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,899	CHEN ET AL.	
	Examiner	Art Unit	
	Long Pham	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 29-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-14* is/are allowed.

6)☒ Claim(s) *1-7 and 29-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Rejections and/or objections as previously applied

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 , 3, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hite et al. (US patent 4,863,878).

With respect to claim 1 , Hite et al. teach a field effect transistor comprising (figs. 2A-2D and associated text):

a silicon substrate 21 , wherein the top surface of said silicon substrate has an increased oxygen content when compared to other portions of said silicon substrate, and wherein said oxygen content of said top surface of said silicon substrate is below an amount that would prevent epitaxial growth (since an epitaxial layer is able to grow thereon); .

an epitaxial silicon layer 27 above said top surface of said silicon substrate; and

a gate stack above said epitaxial silicon layer (col. 3, lines 25-30).

With respect to claim 5, Hite et al. further teach source/drain dopants are limited to the epitaxial layer.

With respect to claim 3, Since Hite et al. leach the substrate having a top surface with an increased oxygen content, the presence of oxygen would limit the dopants within the epitaxial layer from moving into the substrate.

With respect to claim 4, the recited process limitation has not been given weight in the patentability determination of the device claim.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2, 6, and 7 are rejected under 35 U.S.C. 1 03(a) as being unpatentable over Hite et al. (US patent 4,863,878).

With respect to claim 2, the formation of source/drain halo regions is well-known.

With respect to claim 6, the formation of isolation regions in epitaxial layer and silicon substrate is well-known.

With respect to claim 7, the formation of sidewall spacers on gate conductor is well-known.

Rejections and/or objections necessitated by the amendments

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 32 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 32, "said epitaxial silicon panel layer" has no antecedent basis. For the purpose of examination, it is assumed that "said epitaxial silicon panel layer" means the epitaxial source/drain layer.

In claim 33, "said epitaxial silicon halo layer" has no antecedent basis. the purpose of examination, it is assumed that "said epitaxial silicon halo layer" means the epitaxial source/drain layer.

Claim Rejections - 35 USC § 102

Claims 29, 30, and 31 are rejected under 35 U.S.C. 102(b) as being

anticipated by Hite et al. (US patent 4,863,878).

With respect to presently amended claim 29 , Hite et al. teach a field effect transistor comprising (figs. 2A-2D and associated text):

a silicon substrate 21, wherein the top surface of said silicon substrate has an increased oxygen content when compared to other portions of said silicon substrate, and wherein said oxygen content of said top surface of said silicon substrate is below an amount that would prevent epitaxial growth (since an epitaxial layer is able to grow thereon); .

an epitaxial silicon source/drain layer 27 above said top surface of said silicon substrate;

and

a gate stack above said epitaxial silicon layer (col. 3, lines 25-30).

With respect to claim 30, Hite et al. further teach source/drain dopants are substantially limited to the epitaxial layer.

With respect to claim 31, Since Hite et al. leach the substrate having a top surface with an increased oxygen content, the presence of oxygen would limit the dopants within the epitaxial layer from moving into the substrate.

Claim Rejections - 35 USC § 103

Claims 32, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hite et al. (US patent 4,863,878).

With respect to claim 32, Hite et al. fail to teach forming trenches or columns that extend through the substrate and the epitaxial source/drain layer to provide isolation.

However, the formation of trenches or columns that extend through epitaxial layer and substrate for providing isolation is well-known.

With respect to claim 33, Hite et al. fail to teach forming introducing halo dopants into the epitaxial source/drain to form halo regions.

However, the formation of halo regions in epitaxial source/drain layer is well-known.

With respect to claim 34, Hite et al. fail to teach forming isolation regions in the epitaxial layer and the substrate.

However, the formation of isolation regions in epitaxial layer and substrate is well-known.

Response to Arguments

Applicant's arguments filed 08/16/05 have been fully considered but they are not persuasive. See below.

In response to the applicant's arguments on pages 6, 7, and 8 of the amendment dated 08/16/05, it is submitted that claims as written do not require the epitaxial silicon layer to be formed directly on the top surface of the substrate.

Allowable Subject Matter

Claims 8-14 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on Mon-Frid, 10am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham
Primary Examiner
Art Unit 2814

LP